

GOAL 5: OPEN SPACE & NATURAL RESOURCES

To protect open spaces and natural resources and to enhance the connections among these assets



Parker Meadow, located just outside Lexington Center, consists of 17 acres with access from the Minute Man Bikeway.

“I only went out for a walk and finally concluded to stay out till sundown, for going out, I found, was really going in.”

~ John Muir
(From the *Unpublished Journals of John Muir*)

INTRODUCTION

“Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts.”

~ Rachel Carson
A Sense of Wonder

The rounded hills, broad valleys, and winding brooks and streams that make up Lexington’s natural landscape have drawn humans for centuries. First Peoples relied on the friendly terrain for ease in hunting and gathering, and for routing trails between the nearby rivers. European settlers cleared the land for farming. While modern development covers much of Lexington today, the natural landscape continues to fuel residents’ overall high quality of life. Lexington’s commitment to conserving land and protecting natural resources will help ensure the health and well-being of future generations.

Long-term preservation of the town’s open space and natural resources faces several challenges. The 1,403 acres of town-owned conservation land require ongoing management, maintenance and stewardship. These tasks are undertaken by Conservation Division staff at the direction of the Conservation Commission and volunteers support maintenance activities and trail development. Many of Lexington’s open space parcels stand disconnected from one another, hampering the ability of wildlife to travel safely across the land. And residents’ increasing reliance on renewable energy sources and desire for advanced telecommunication facilities conflicts with the need to preserve the cooling canopies of shade trees.

Open spaces and natural resources contribute to the quality of life in Lexington by providing:

- Places to explore, hike, snowshoe, bird-watch, and trail-run, watch the sunrise and sunset, or take a break and enjoy some fresh air
- Habitat for wildlife
- Historic and cultural value
- Cooling shade from the canopies of mature deciduous trees
- Protection of water resources, water quality, and large areas of flood storage
- Flood and erosion control, protection of water quality, capturing and storing atmospheric carbon
- Soil for growing vegetables for sharing at the table with family and friends



The privately-owned Wilson Farm, located on Pleasant Street, covers 33 acres, making up three-quarters of actively farmed land remaining in Lexington.

Goal #5 addresses Lexington’s desire to better maintain the existing town-owned open spaces; to provide more connections between these open spaces and neighborhoods; and to balance the future acquisition of open space with the need to develop affordable housing. The goal also focuses on natural resource protection as a means of safeguarding the town from the detrimental effects of climate change.

OVERVIEW OF LEXINGTON’S OPEN SPACE AND NATURAL RESOURCES

A DIVERSITY OF OPEN SPACES

Lexington contains over 3,405.77 acres of open space lands, owned by both public and private entities including passive and active recreation areas in addition to conservation land.¹ The two largest are Hanscom Air Force Base (147.60 acres in Lexington) and the Minute Man National Historical Park (100.12 acres in Lexington), both

¹ Source: **2015 Lexington Open Space & Recreation Plan**. 2,764.94 acres are publicly-owned; 639.83 are privately-owned (total: 3,405.77). Open space

LEXINGTON VOICES REGARDING OPEN SPACE AND NATURAL RESOURCES

At the 2018 **World Cafe** forums...

- a majority of participants reported the town’s open spaces and conservation areas as being “valued,” and at the same time expressed concern about them.
- one participant noted that, *“the connection to the Minute Man National Park is important.”*

CPAC Members opined the following:

- *“Lexington is a suburb so open spaces are not really natural and should be treated like parks, and we need to respect the need to maintain these”*
- *“There is a synergy and tension between open spaces, historic resources, and the need for affordable housing”*

From SWOT Analysis @ **LexingtonNEXT “Kickoff Event:”**

- *“There is need to balance density and open/natural space”*
- *“There is a need to mitigate the impacts of large houses being built on natural resources, including ground water, animal habitat, etc.”*
- *“We need to promote a green town with trees and public green spaces”*

lands include recreation areas, playgrounds, school playing fields, agricultural lands, as well as conservation lands.



Locke Pond, located near Lexington's highest point (Whipple Hill) is one of the few surface water bodies in the town.

owned by the Federal government. The town owns a total of 2,065 acres of open space, or 19.4% of the total area.² Dunback Meadow (159.17 acres) is the largest and serves as one of the town's prime bird-watching locations. Privately-owned open spaces total 639.83 acres, which includes golf courses, private recreation facilities, and commercial operations.

DISTINCTIVE NATURAL RESOURCES

Lexington's landform consists of rounded hills interspersed with flat-bottomed valleys, ranging in elevation from 374 feet above sea level

² 1,043 of the total 2,065 acres of open space are classified as conservation lands.

³ The US Environmental Protection Agency defines a wellhead protection area as "the surface and subsurface area surrounding a water well or

WHAT DOES IT MEAN?

- A need exists for stronger land management regulations to balance environmental protection with development.
- A lack of connections between open spaces and neighborhoods, accomplished through trail and universal access development, limits the use of open space.
- Demand for use of outdoor spaces surged during the COVID-19 pandemic, placing greater strain on the town's conservation areas, and increasing the need for greater trail maintenance, forest management, and other outreach and educational stewardship measures.
- An opportunity exists to address climate change mitigation through future land conservation.

(Whipple Hill) to 100 feet (Tophet Swamp). Soils across Lexington are largely favorable to building construction, with over two-thirds of the town containing sandy, gravelly and/or well-drained soils. As a "headwaters community," Lexington is unique in that it contributes to three watersheds: each of the town's twenty brooks and streams feeds the Shawsheen, Mystic, or Charles River watersheds. The town maintains over 3,200 acres of wellhead protection area that safeguards the water supply for neighboring Burlington.³ Additionally, the City of Cambridge owns and maintains land in south Lexington

wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield."

containing portions of the Hobbs Brook Reservoir to protect the

ADDITIONAL LEXINGTON VOICES

(Participants in June 15, 2021 Public Forum)

Protect and connect open spaces and natural resources by:

- *Improving bicycling amenities:*
 - Promoting walking tours for ACROSS Lexington routes
 - Connecting more walking and biking trails together and to open space
 - Adding more bike lanes to streets and improving crosswalks
 - Encouraging bike rental businesses on the bike path
 - Expanding existing app for trails and open spaces
 - Expanding awareness of trails and continuing to encourage biking and walking as travel modes for students
 - Promoting off-road biking
- *Encouraging further acquisition of open space*
- *Planting more trees to help lower carbon emissions and educating the community on the importance of trees*
- *Promoting volunteer Conservation Steward positions to youth organizations (Girl Scouts, Boy Scouts, etc.) to engage them in trail maintenance*
- *Encouraging Recreation Department-organized activities to use open spaces*
- *Promoting better stewardship of private lands between conservation areas so the latter are not isolated patches of nature*



The purchase of the Busa Farm by the town preserved farmland and at the same time allowed for the creation of affordable housing units.

RELATED TOWN OF LEXINGTON GOALS & OBJECTIVES

2021-2023 Planning Board Work Plan Item:

- 3.H: Amend the Zoning Bylaw to add a new Open Space Residential District (OSRD) Bylaw as an alternative to conventional subdivision and Special Permit Residential Development (SPRD)

Develop and adopt design guidelines and regulations to facilitate sustainable site layouts, quality building designs, and preservation of open space.

ADDITIONAL LEXINGTON VOICES

(from interviews with town Staff, Board/Committee Members,
Community Leaders, May-June 2021)

“There is a need to establish a policy that balances the installation of solar panels with the removal of mature shade trees”

“The impact of dogs on wildlife is not good”

“The purchase of the Busa Farm for use by LexFarm (for agriculture) and LexHAB (for affordable housing) balances the town’s need for more affordable housing with its desire to conserve open space”

(participants in September 2021 online survey)

When asked...

- *to identify the locations in Lexington that they value or enjoy, 82.14% chose open spaces and conservation lands; the same percentage of respondents chose the Minute Man Commuter Bikeway and other trail networks*
- *what would attract participants back to Lexington if they moved away, one-third chose proximity to parks and open space*

quality of the City’s drinking supply⁴. Agriculture, once the dominant economic activity in Lexington, is nearly obsolete, with less than 43 acres in farming today.

Fourteen species of conservation concern (endangered, threatened or of special concern), including birds, amphibians, reptiles, crustaceans, and vascular plants, have been identified in the town by the Massachusetts Division of Fisheries and Wildlife’s Natural Heritage and Endangered Species Program (NHESP). According to NHESP, Lexington has one Core Habitat and one Critical Natural Landscape,⁵

QUESTIONS TO CONSIDER:

What is the best way to balance environmental protection and development?

Should the town invest more in professional staff to provide stewardship of conservation areas, rather than relying heavily on volunteers?

How can community-based conservation projects be designed to address climate change mitigation?

Can creative land protection projects be invented through partnerships between the town and entities such as LexHAB and private developers?

How can a system of trails, designed to provide universal access, be funded to connect neighborhoods with highly-valued open spaces?

⁴ City of Cambridge, Water Department
<https://www.cambridgema.gov/Water/watershedmanagementdivision/sourcewaterinfrastructureandproperties/Properties>

⁵ Core Habitats are specific areas necessary to promote the long-term persistence of rare species; Critical Natural Landscapes are intact landscapes that are better able to support ecological processes and disturbance regimes, and a wide array of species and habitats (NHESP).

both located at the western end of town in the vicinity of Katahdin Woods and Fiske Hill.



**POTENTIAL SHORT-TERM AND/OR LONG-TERM
IMPACTS OF COVID-19 ON OPEN SPACE AND
NATURAL RESOURCES**

Demand for use of municipally-owned open spaces increased throughout the country during the pandemic as they provided a reprieve from the isolation of home. If this trend continues, Lexington will need to invest in land management and maintenance, including parking area and trail maintenance, forest management, land use rules education, and other stewardship measures to preserve and protect the town's existing open space.

GOAL 5: TO PROTECT OPEN SPACES AND NATURAL RESOURCES

To protect open spaces and natural resources and to enhance connections among these assets

Objective 5.1. Conserve natural resources

Objective 5.2. Protect existing and acquire new open spaces in balance with the need for land for affordable housing

Objective 5.3. Connect open spaces

Objective 5.4. Incorporate natural resource and open space protection measures into the town's sustainability and resiliency goals.

The Implementation Table on the pages that follow identifies Action Steps, Responsible Parties, Potential Partners and other factors to support the implementation of each of the objectives and to help attain the goal.



*A rock outcrop on Whipple Hill supports native plant species including *Arctostaphylos uva-ursi*, bearberry. A popular hiking and bird-watching spot, the conservation area is surrounded by residential neighborhoods and abutted on the east side by the historic Wright-Locke Farm in Winchester.*

GOAL 5: TO PROTECT OPEN SPACES AND NATURAL RESOURCES

Objective 5.1. Conserve and protect natural resources					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
5.1.1. Protect plant and wildlife habitat	<p>Engage volunteers in an effort to eradicate invasive plant species using a combination of removal and treatment methods</p> <p>Acquire new open space parcels that are identified in any Federal, state or local maps as priority, core, or critical habitat, while adhering to the Town's current and future land acquisition policies, such as for affordable and moderate-income housing.</p> <p>Enhance wildlife habitat on existing parcels through active management and restoration efforts</p> <p>Explore the creation of wildlife corridors where possible to connect existing and future preserved open spaces</p>	<p>Natural Heritage and Endangered Species Program Threatened and Endangered Species; Species of Special Concern</p> <p>BioMap2 Core Habitat and Critical Natural Landscape</p> <p><i>Living Waters: Guiding the Protection of Freshwater Biodiversity in MA,</i> EEA/DFW/NHESP</p> <p><i>Conservation Assessment and Prioritization System (CAPS) Statewide Massachusetts Assessment,</i> UMass Amherst, Landscape Ecology Program</p> <p><i>Mapping and Prioritizing Parcels for Resilience</i> (MAPPR), MassAudubon</p>	<p>Massachusetts Division of Conservation Services Grant Programs/ LAND Grants (SEE ENDNOTE #1)</p>	<p>LEADS: Conservation Commission & Conservation Staff</p> <p>Land Use, Health and Development Department</p> <p>PARTNERS: Conservation Stewards</p> <p>Citizens for Lexington Conservation Commission (CLC)</p> <p>Community Preservation Committee</p> <p>Sustainable Lexington Committee</p> <p>EEA Division of Conservation Services (DCS)</p>	<p>#1: IMMEDIATE (Years 1 – 5)</p> <p>and</p> <p>ON-GOING (continue to support)</p>

Objective 5.1. Conserve and protect natural resources					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
				MA Department of Conservation & Recreation (DCR) Minute Man National Historical Park	
5.1.2 Institute a land management program to protect wetlands, streams, ponds, and key upland buffer areas, etc.	Develop a means of communicating the restrictions and performance standards imposed on land development by the Massachusetts Wetlands Protection Act and Lexington's Wetland Protection Code to developers and property-owners Add upland & preservation performance standards to Zoning Bylaw and Planning Board Regulations	Massachusetts Wetlands Protection Act Lexington's Wetland Protection Code		LEADS: Conservation Commission Conservation Staff Land Use, Health and Development Department PARTNERS: Conservation Stewards Citizens for Lexington Conservation (CLC) Sustainable Lexington Committee	#1: IMMEDIATE (Years 1 – 5)

Objective 5.1. Conserve and protect natural resources					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
5.1.3. Partner on conservation and protection efforts with Federal and state governments and adjacent towns that share or abut open space parcels across town boundaries	<p>Consider forming a ten-town consortium dedicated to conserving and protecting shared or abutting conservation areas, and maintaining these areas:</p> <ul style="list-style-type: none"> Organize clean-up and maintenance crews Develop trail maps Develop educational programs (workshops, lectures, school curricula) centered on the natural resources of the shared/abutting parcels Develop a website to provide information about the areas to residents and visitors 	<p>Arlington Great Meadow</p> <p>Cambridge Reservoir</p> <p>Arlington Reservoir</p> <p>Burlington Land-Locked Forest</p> <p>Conservation Commissions and volunteers in the towns of Arlington, Bedford, Belmont, Burlington, Concord, Lincoln, Waltham, Woburn and Winchester</p> <p>Department of Conservation & Recreation Beaver Brook North Reservation</p> <p>Minuteman National Historic Park</p>	Community Preservation Act	<p>LEADS:</p> <p>Conservation Commission</p> <p>Conservation Staff</p> <p>Land Use, Health and Development Department</p> <p>PARTNERS:</p> <p>Conservation Stewards</p> <p>Citizens for Lexington Conservation (CLC)</p> <p>Friends of Great Meadows</p> <p>Conservation Commissions and volunteers in the towns of Arlington, Bedford, Belmont, Burlington, Concord, Waltham, and Winchester</p>	<p>#2: INTERMEDIATE (Years 5-10)</p>

Objective 5.1. Conserve and protect natural resources					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
				National Park Service (NPS) Department of Conservation & Recreation (DCR) Conservation Network Organization, [such as Massachusetts Society of Municipal Conservation Professionals (MSMCP)]	

Objective 5.2. Protect existing and acquire new open spaces in balance with the need for land for affordable housing					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
5.2.1. Strengthen current efforts to maintain and protect existing open space	Expand Conservation Stewardship program to involve youth in trail maintenance Prepare comprehensive Land Management and Forest Stewardship Plans for open space parcels Support Invasive Species Management projects Support native species restoration projects through the Conservation Native Plant Nursery	3,400 acres of open land owned by public and private entities 2015 <i>Open Space and Recreation Plan</i> ⁶	Community Preservation Act Lexington Nature Trust	LEADS: Conservation Commission/ Conservation Staff Recreation Dept./Recreation Committee PARTNERS: Conservation Stewards Citizens for Lexington Conservation (CLC) Tree Committee Sustainable Lexington Committee DPW Public Facilities	#1: IMMEDIATE (Years 1 – 5)

⁶ An update to the 2015 plan was in process at the time the Comprehensive Plan was under development.

Objective 5.2. Protect existing and acquire new open spaces in balance with the need for land for affordable housing					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
5.2.2 Acquire additional open space through established acquisition models and programs	<p>Identify undeveloped parcels as possible candidates for open space protection⁷</p> <p>Educate parcel owners about the advantages of the preservation programs available for open space protection</p>	<p>2015 <i>Open Space and Recreation Plan</i></p> <p>Existing list of priority parcels</p> <p>2020 Community Needs Assessment</p>	<p>Massachusetts Division of Conservation Services Grant Programs</p> <p>Community Preservation Act</p>	<p>LEADS: Land Acquisition Committee</p> <p>Conservation Commission</p> <p>Recreation Dept./Recreation Committee</p> <p>PARTNER: Select Board</p>	#2: INTERMEDIATE (Years 5-10)
5.2.3 Protect remaining farmland, certain institutional, and recreational parcels from residential and/or commercial development	<p>Identify undeveloped parcels with agricultural soils as possible candidates for protection</p> <p>Educate parcel owners about the advantages of the preservation programs available for farmland protection</p> <p>Evaluate the potential of remaining farmland to be preserved for Community Supported Agriculture-related activity, such as leasing land to farmers to cultivate CSA operations</p> <p>Consider zoning changes to preserve agricultural soils and to prevent the conversion of farmland to residential and/or commercial uses</p> <p>Evaluate the potential or remaining farmland to be preserved for use, in part, as community garden space</p>	<p>Former farms now protected as conservation land</p> <p>LexFarm</p> <p>2015 Open Space and Recreation Plan</p> <p>M.G.L. Chapter 61A</p> <p>Massachusetts Agricultural Preservation Restriction Program (APR)</p>	<p>Community Preservation Act</p>	<p>LEAD: Land Use, Health and Development Department</p> <p>Planning Division/Planning Board</p> <p>PARTNER: LexFarm</p>	#1: IMMEDIATE (Years 1 – 5)

⁷ The Land Acquisition Subcommittee of the Conservation Commission has reviewed the 1996 list and has made revisions, which will be formatted as a spreadsheet.

Objective 5.2. Protect existing and acquire new open spaces in balance with the need for land for affordable housing					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
	Consider the formation of an Agricultural Commission to oversee action on this strategy	<p>American Farmland Trust</p> <p>Massachusetts Community Supported Agriculture (CSA) Program</p> <p>Lexington Christian Academy, Stone Meadow Golf, & Wilson Farm⁸</p>			

⁸ The Wilson Farm, located at 10 Pleasant Street, is currently zoned for single-family residential development (RS), Lexington Christian Academy at 265 Lowell Street and Stone Meadow Golf at 675 Waltham Street are zoned for one-family residents (RO).

Objective 5.3. Connect open spaces					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
5.3.1. Continue to connect open spaces, parks, and conservation areas utilizing and expanding existing routes	<p>Identify and map potential connections, including greenways and sidewalks</p> <p>Continue to increase access to existing open spaces, park, and conservation areas by developing more trails, expanding the ACROSS Lexington connections, and placing more signage that complies with ADA guidelines</p>	<p>Existing municipal, state and Federally-owned open spaces</p> <p>Existing ACROSS Lexington trail system</p>	<p>CPA</p> <p>Massachusetts Division of Conservation Services Grant Programs</p>	<p>LEAD: Greenways Corridor Committee</p> <p>PARTNERS: Land Use, Health and Development Department</p> <p>Conservation Commission</p> <p>Recreation Dept.</p> <p>Human Services - Transportation</p> <p>DPW</p> <p>Public Facilities</p> <p>Bicycle Advisory Committee</p> <p>Committee on Disability</p>	<p>#1: IMMEDIATE (Years 1 – 5)</p> <p>and ON-GOING (Continue to Support)</p>

Objective 5.3. Connect open spaces					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
5.3.2. Explore collaborations with surrounding communities to create a regional system	Consider and spearhead a ten-community plan to create a regional system: <ul style="list-style-type: none"> • Compile a complete inventory of open spaces within the ten-community area • Identify locations and possible greenway links • Identify tools for collaborative land conservation efforts • Promote and publicize the regional system 	Open spaces in Arlington, Bedford, Belmont, Burlington, Concord, Lincoln, Waltham, Winchester, Woburn Shawsheen, Mystic and Charles River Watershed Associations	DCR Grant Programs	LEAD: Greenways Corridor Committee PARTNER: Land Use, Health and Development Department	#2: INTERMEDIATE (Years 5-10)

Objective 5.4 Incorporate natural resource and open space protection measures into the town's sustainability and resiliency goals.					
Strategies	Potential Actions	Existing Resources	Funding	Lead & Partner(s)	Phasing
5.4.1 Impose site disturbance thresholds to reduce stormwater runoff in the construction of new homes	<p>Develop amendments to the existing Zoning Bylaw aimed at:</p> <ul style="list-style-type: none"> limiting redevelopment on nonconforming lots to the existing building footprint reducing runoff volumes <p>Amend wetland regulation performance standards to align with amendments</p>	Existing Zoning Bylaw		<p>LEAD: Planning Board</p> <p>PARTNERS: Sustainable Lexington Committee</p> <p>Land Use, Health and Development Department</p> <p>DPW</p> <p>Conservation Commission</p>	#1: IMMEDIATE (Years 1 – 5)
5.4.2. Reduce the number of trees being cut down when new homes are constructed	<p>Monitor and assess the impact and benefit of 2021 Annual Town Meeting articles 32, 33 and 34 (SEE ENDNOTE #2)</p> <p>Based on results of the assessment, amend the existing Tree Bylaw, as required, to better align shade tree protection with the town's sustainability and resiliency goals</p> <p>Amend Zoning Bylaw and Planning Board Regulations</p>	<p>Existing Tree Bylaw</p> <p>Lexington Wetland Protection Code regulation performance standards</p>		<p>LEAD: Tree Committee and Tree Warden</p> <p>PARTNERS: Planning Board</p> <p>Land Use, Health and Development Department</p> <p>Conservation Commission</p>	#1: IMMEDIATE (Years 1 – 5)

ENDNOTES

#1. Massachusetts Division of Conservation Services Grant Programs. As of the writing of this plan, the Massachusetts Division of Conservation Services provides grants to cities and towns in eight categories, four of which pertain to natural resource conservation and open space protection:

- **Land and Water Conservation Fund**, for acquisitions of land for conservation or recreation purposes, building a new park, renovating an existing park, or doing trail work
- **Conservation Partnership** (for non-profit entities), for acquisitions of conservation land by non-profit entities (such as a land trust)
- **Landscape Partnership** (for collaboration efforts with other towns and/or the Federal government), for protection of large blocks of conservation land; open to local, state, and Federal government agencies and non-profit groups to work together to protect at least 500 acres of land
- **Local Acquisition for Natural Diversity**, for acquisitions of land that will be used for conservation and passive recreation purposes
- **PARC (Parkland Acquisitions and Renovations for Communities)**, for acquiring and developing land for park and outdoor recreation purposes.

Detailed information about each of the grant programs is available online: <https://www.mass.gov/grant-programs-offered-by-the-division-of-conservation-services/tasks>

#2. Article 32 requires that an individual (other than the town) requesting the removal of a public shade tree pay for an appraisal of the value of the shade tree before it is removed and to pay that amount into the Tree Fund; **Article 33** requires property owners doing major construction or demolition to submit detailed information on tree removal; **Article 34** requires replacement of protected tree and increases the mitigation for removal of protected trees.